

# BIOL 0017B - ECOLOGY OF THE SUTTER BUTTES

## Catalog Description

Hours: 13 (7 lecture, 6 laboratory)

Description: Field study that introduces the ecology of the Sutter Buttes. The area is investigated in the field to identify and study the characteristic plants and animals and discover their relationships with the physical environment. This class may require ability to hike moderate distances on uneven ground. (CSU)

## Course Student Learning Outcomes

- CSLO #1: Describe and evaluate the impacts of humans on the environments of the Sutter Buttes.
- CSLO #2: Identify the ecological and geological principles that affect the ecosystem of the Sutter Buttes.
- CSLO #3: Explain the factors that have shaped the evolutionary adaptations of organisms in the Sutter Buttes.
- CSLO #4: Accurately document and interpret ecological observations made on a field trip in the Sutter Buttes.

## Effective Term

Fall 2022

## Course Type

Credit - Degree-applicable

## Contact Hours

13

## Outside of Class Hours

14

## Total Student Learning Hours

27

## Course Objectives

Course objectives are linked to items listed in the course content outline (parentheses).

Lecture Objectives:

1. Evaluate the factors that have affected the formation of the Sutter Buttes ecosystem. (Lecture Outline #1, #2, #3)
2. Apply ecological terminology to the description of the Sutter Buttes ecosystem. (Lecture Outline #1, #3, #4, #5, #6)
3. Describe the interactions the local organisms have with the biotic and abiotic factors of the Sutter Buttes ecosystem. (Lecture Outline #3, #4, #5, #6).
4. Explain the role that geology plays in the formation and delineation of Sutter Buttes habitats. (Lecture Outline #2, #3)
5. Analyze the past and present effects that humans have on the Sutter Buttes ecosystem. (Lecture Outline #7)

Laboratory/Field Objectives:

1. Demonstrate proper use of a taxonomic key or field guide to identify species. (Laboratory/Field Outline #1)

2. Identify key geological features that impact the formation and function of the Sutter Buttes ecosystem. (Laboratory/Field Outline #2)
3. Identify and observe the interactions that local organisms have with the biotic and abiotic factors of their ecosystem. (Laboratory/Field Outline #1, #2, #3, #4)
4. Identify unique and/or rare populations occurring in the Sutter Buttes and their key ecological interactions. (Laboratory/Field Outline #3)
5. Identify examples of human impacts to the Sutter Buttes ecosystem and evaluate the extent of those impacts. (Laboratory/Field Outline #4)
6. Compose a detailed field journal or summary report documenting the field trip experience. (Laboratory/Field Outline #5)

## General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

## Articulation Information

- CSU Transferable

## Methods of Evaluation

- Projects
  - Example: To address Course Laboratory/Field Objective #6, "Compose a detailed field journal or summary report documenting the field trip experience", students might be asked to compile a field journal documenting the field trip experience. Students could be evaluated based on accuracy of information, attention to detail, and inclusion of narrative and visual elements.
- Reports
  - Example: To address Course Lecture Objective #3, "Identify and observe the interactions the local organisms have with the biotic and abiotic factors of the Sutter Buttes ecosystem", students might be asked, either individually or in groups, to prepare a short oral presentation or written report or participate in a class discussion about the major characteristics of a species of plant or animal occurring in the Sutter Buttes. Students could be evaluated on participation, accuracy of information, attention to details, and completeness.
- Skill Demonstrations
  - Example: To address Course Laboratory/Field Objective #1, "Demonstrate proper use of a taxonomic key or field guide to identify species", students might be asked to use a taxonomic key to correctly identify an unknown organism. Students could be evaluated on correctness of answer, technique, and application of terminology in the key.

## Repeatable

No

## Methods of Instruction

- Laboratory
- Lecture/Discussion

Lab:

1. To satisfy Course Laboratory/Field Objective #1, "Demonstrate proper use of a taxonomic key or field guide to identify species", the instructor might explain what a taxonomic key is, lead the class

in a demonstration of the use of a key for a known specimen, and then guide students as they attempt the identification of unknown specimens.

2. To satisfy Course Laboratory/Field Objective #2, "Identify key geological features that impact the formation and function of the Sutter Buttes ecosystem", the instructor might point out such key features encountered while at the Sutter Buttes, and lead students in a discussion of what those features are and what their geological and ecological significance are.

#### Lecture:

1. To satisfy Course Lecture Objective #4, "Explain the role that geology plays in the formation and delineation of Sutter Buttes habitats", the instructor might present a lecture (supplemented by images and/or video) that explains the geological history of the Sutter Buttes, what geologic rock formation(s) make up the area, when the Sutter Buttes was formed, and place it in context of the surrounding geological features, and then students will make and record their own observations of geological features.
2. To satisfy Course Lecture Objective #5, "Analyze the past and present effects that humans have on the Sutter Buttes ecosystem", the instructor might lead an in-class discussion about the historical impacts of humans on the Sutter Buttes (e.g. agricultural impacts, introduced species, aquatic impacts, etc.).

## Typical Out of Class Assignments

### Reading Assignments

1. To address Course Lecture Objective #2, students might be asked to read a handout that describes basic ecological terminology related to the Sutter Buttes and then apply this knowledge to descriptions of observations made in the field.
2. To address Course Lecture Objectives #1 and #5, and Course Laboratory/Field Objective #5, students might be asked to review the information regarding the mission and function of the Sutter Buttes Regional Land Trust provided on their website and be prepared to discuss this in class.

### Writing, Problem Solving or Performance

1. To address Course Lecture Objective #3 and Course Laboratory/Field Objective #3 and #4, students might be asked to write and/or prepare a short oral presentation about a species found in the Sutter Buttes.
2. To address Course Lecture Objective #5 and Course Laboratory/Field Objective #5, students might be asked to describe (verbally or in writing) the role that local conservation organizations play in the conservation of the Sutter Buttes ecosystem.

## Other (Term projects, research papers, portfolios, etc.)

1. To address Course Laboratory/Field Objective #6, students might be asked to record observations and data in a detailed field journal during the field trip, or to prepare a summary report of the field trip experience.

## Required Materials

- Field Guide to the Sierra Nevada
  - Author: Laws, John Muir
  - Publisher: Harvard University Press
  - Publication Date: 2007
  - Text Edition: 1st

- Classic Textbook?:
- OER Link:
- OER:
- Pacific Coast Tree Finder
  - Author: Watts, Tom
  - Publisher: Nature Study Guild Publishers
  - Publication Date: 2004
  - Text Edition: 2nd
  - Classic Textbook?:
  - OER Link:
  - OER:
- The Laws Guide to Nature Drawing and Journaling
  - Author: Laws, John Muir
  - Publisher: Heyday Books
  - Publication Date: 2016
  - Text Edition: 1st
  - Classic Textbook?:
  - OER Link:
  - OER:

**Other materials and-or supplies required of students that contribute to the cost of the course.**